

CLAIMS

WHAT IS CLAIMED IS:

1. A method of forming an optical module comprising:
  - 5       coupling an image sensor to a base of a substrate; and
    - coupling a lens housing to a sidewall of said substrate.
  - 10      2. The method of Claim 1 wherein said base comprises a first surface, a first surface of said image sensor being coupled to said first surface of said base.
  - 15      3. The method of Claim 2 wherein said image sensor comprises a second surface comprising a bond pad, said method further comprising electrically coupling said bond pad to an interior trace on said first surface of said base.
  - 20      4. The method of Claim 1 further comprising coupling a window to said lens housing.
  - 25      5. The method of Claim 1 further comprising coupling an optical element to said lens housing.
  - 30      6. The method of Claim 5 wherein said optical element comprises a lens.
  - 35      7. The method of Claim 1 further comprising coupling a lens support to said lens housing.
  8. The method of Claim 7 wherein said coupling a lens support comprises threading said lens support into a central aperture of said lens housing.

9. The method of Claim 8 wherein an active area of said image sensor is visible through said central aperture.

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10. The method of Claim 9 further comprising: directing radiation at said optical module; and rotating said lens support to focus said radiation on said active area.

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11. The method of Claim 7 wherein said lens support is snap mounted into said lens housing.

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12. The method of Claim 1 wherein said substrate is one of a plurality of substrates coupled together in an image sensor substrate, said method further comprising singulating said image sensor substrate.

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13. The method of Claim 12 wherein said singulating comprises snapping said image sensor substrate.

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14. A method comprising:  
coupling an image sensor to a base of a substrate; and  
coupling a mounting surface of a lens housing to a joint surface of a sidewall of said substrate.

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15. The method of Claim 14 wherein said mounting surface is coupled to said joint surface by adhesive.

16. The method of Claim 14 wherein said mounting surface is coupled to said joint surface by a butt bond.

5        17. The method of Claim 14 wherein said mounting surface comprises a locking feature.

10        18. The method of Claim 17 wherein said coupling a mounting surface of a lens housing to a joint surface of a sidewall of said substrate comprises:

forming a bond between a first surface of said mounting surface and said joint surface; and

15        forming a bond between a second surface of said mounting surface and an interior surface of said sidewall.

20        19. The method of Claim 18 wherein said first surface of said mounting surface is parallel to said joint surface and wherein said second surface of said mounting surface is perpendicular to said joint surface.

25        20. The method of Claim 14 wherein said joint surface comprises a locking feature.

30        21. The method of Claim 20 wherein said coupling a mounting surface of a lens housing to a joint surface of a sidewall of said substrate comprises:

forming a bond between a first surface of said joint surface and said mounting surface; and

35        forming a bond between a second surface of said joint surface and an exterior side surface of said lens housing.

22. The method of Claim 21 wherein said first surface of said joint surface is parallel to said mounting surface and wherein said second surface of  
5 said joint surface is perpendicular to said mounting surface.

23. The method of Claim 14 wherein said substrate is one of a plurality of substrates  
10 coupled together in an image sensor substrate, said method further comprising singulating said image sensor substrate.

24. The method of Claim 23 wherein said singulating comprises snapping said image sensor  
15 substrate.

25. A method comprising:  
coupling an image sensor to a first substrate  
20 of an image sensor substrate;  
coupling a lens housing to said first substrate; and  
snapping said image sensor substrate along a  
singulation street between a first sidewall of said  
25 first substrate and a second sidewall of a second substrate of said image sensor substrate.